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ABSTRACT

This book is part of an international series developed as a collaboration among the author, the illustrator, an advisory group of elementary school teachers and an academic specialist on the subject. This book answers questions about the history, use, and methods of producing cotton. Among the questions the book answers are: How long have people been spinning and weaving cotton? How is cotton grown? How is the fiber made into yarn? How is the fabric dyed? The book illustrates both machine and hand production of cotton and cotton products. Varieties of cotton fabrics are noted, and an array of fiber-producing plants are described. Profuse colored illustrations include two maps showing cotton-producing regions around the world and in the United States. (DB)

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The Cotton in Your T-Shirt...

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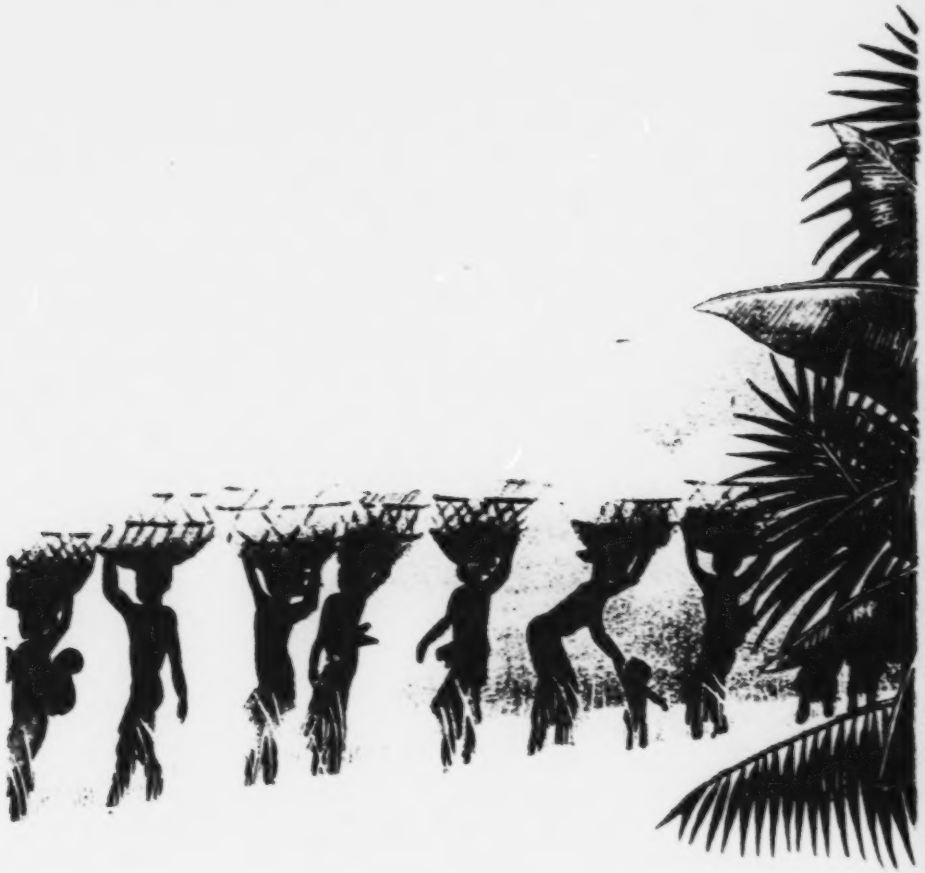

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International Cotton Institute

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The Cotton in Your T-Shirt...

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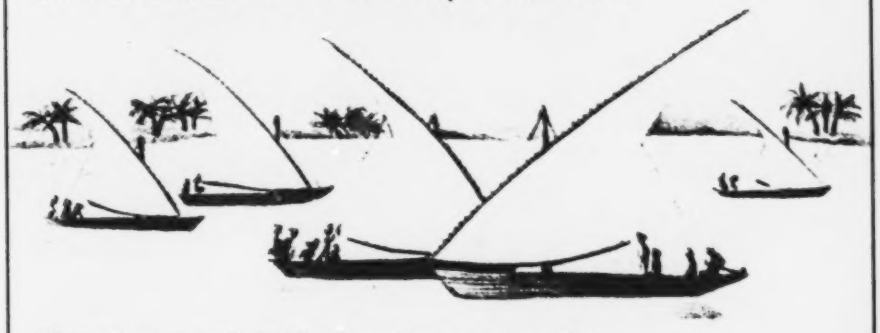
In the mountains a cotton tent keeps out the cold.



These boats on the Nile river have cotton sails.

Chinese people wear quilted cotton clothes in winter.

Robes and turbans protect from desert sun and wind.

Cotton swabs and puffs help keep you clean. Your nice, clean underwear is made from cotton, too. And who doesn't have a cotton T-Shirt?

People all over the world wear clothes made of cotton. It is worn light and cool in hot places; thick and quilted in lands that are cold. Cotton is used in tents, sails and sneakers.

Cotton is comfortable because it lets your skin breathe. It is even stronger when wet than dry. Cotton can be washed in boiling water or cleaned with disinfectants. It is used in hospitals where everything must be very clean.

Cotton
flowers are yellowish-white, then pink, then red

Where does cotton come from?

From a wonderful bush—the cotton plant. Wild cotton plants are really small trees. They can grow to 20-feet high and live ten years.
The plants we grow are much smaller and live about a year. Two months after planting they start to bloom. The flowers are so lovely they once decorated homes in China.

Inside a cottonseed.

When ripe, the boll splits and bursts open.

After a few days, the flower drops off and a **cotton boll**, or seedpod, starts growing in its place. Inside, the seeds are nestled in fluffy, white...cotton!

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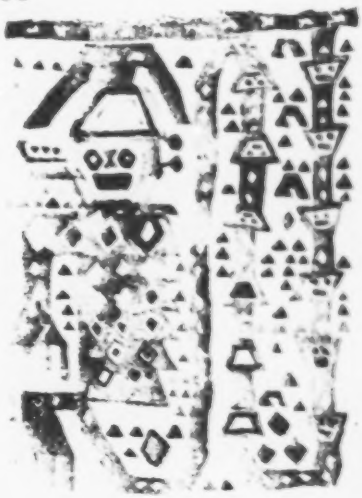
Cotton is a plant of both the Old and New Worlds.
People in Asia and the Americas have grown cotton for over 5,000 years! Archaeologists have found cotton among the remains of cave dwellers in Mexico and in Pakistan. The early people of the Indus valley even had a machine to separate cotton fibers from the seeds. Natives showed cotton thread to Columbus!

Europe had no cotton—how did it get there?
The Arabs, from the Middle East, brought it in the 8th century. The name comes from the Arabic word *qutun*, which is pronounced **coo**-tun.
Invaders, like the Arabs, can often bring good things.



A tapestry, or wall covering, from Peru.

Only rich people had cotton garments in 16th-century Europe. Then English and Dutch merchants began to bring large amounts of raw cotton from America. Soon everyone was wearing cotton!

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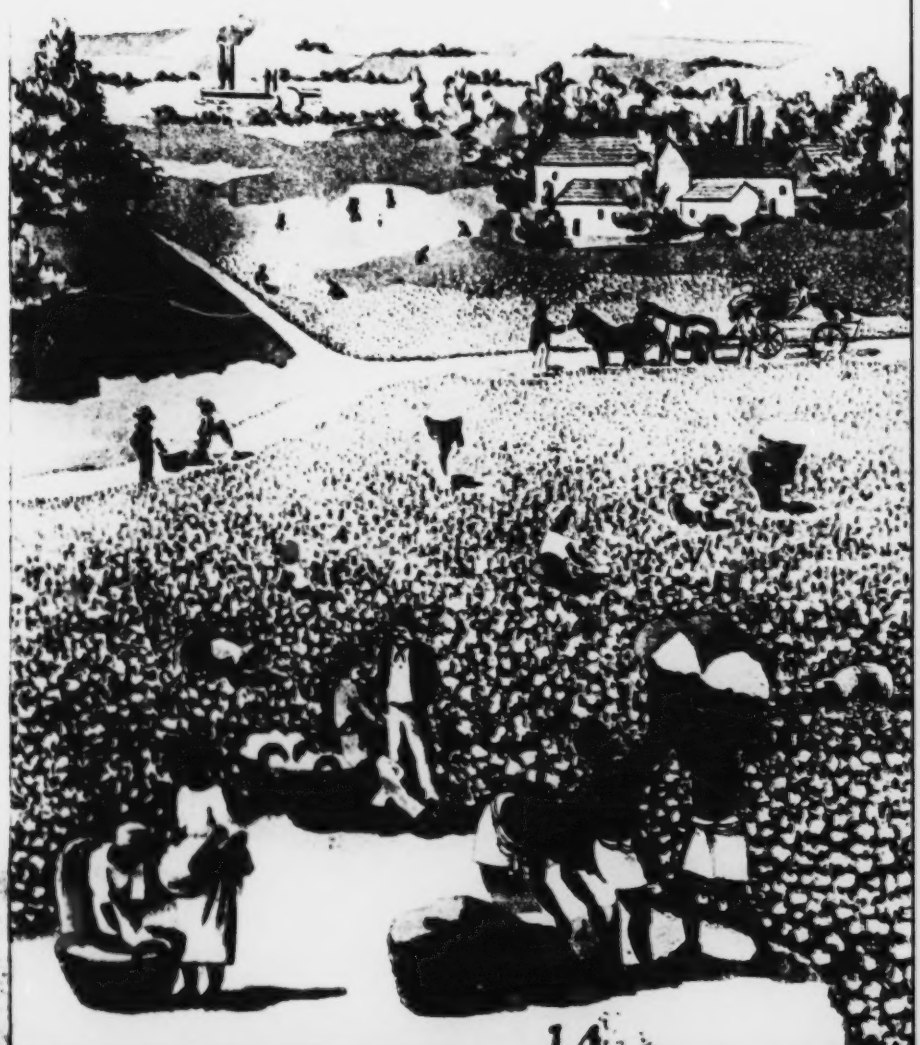
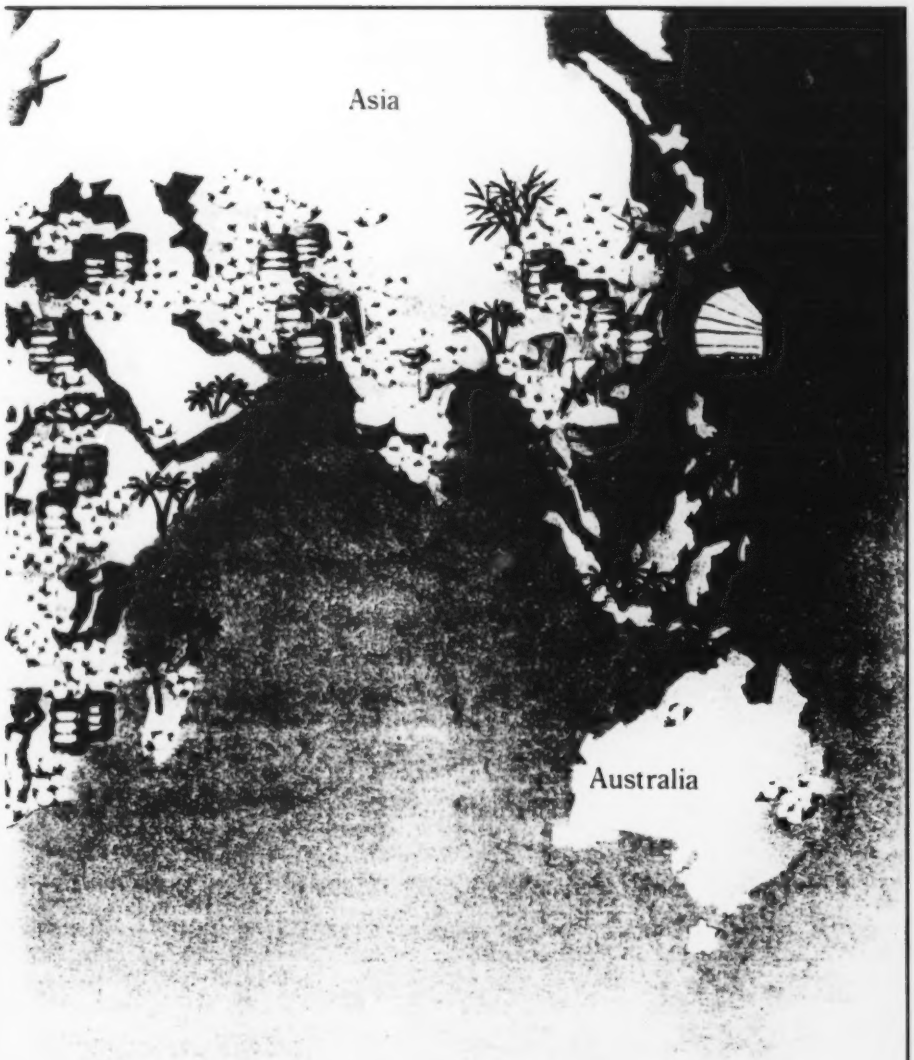
In the southern states of America, cotton was grown on enormous **plantations**. The work was very hard: black slaves, brought from Africa, picked the cotton bolls, one by one.



Today cotton is available around the world. It grows in warm climates and it is **cultivated** in over seventy countries.
The top three cotton growing areas: China, Central Asia and America.



Europe produces many **textiles** made from cotton. Almost all of their raw cotton is imported from Africa, Asia or the Americas. Millions of people, and many countries, have a share in making cotton.

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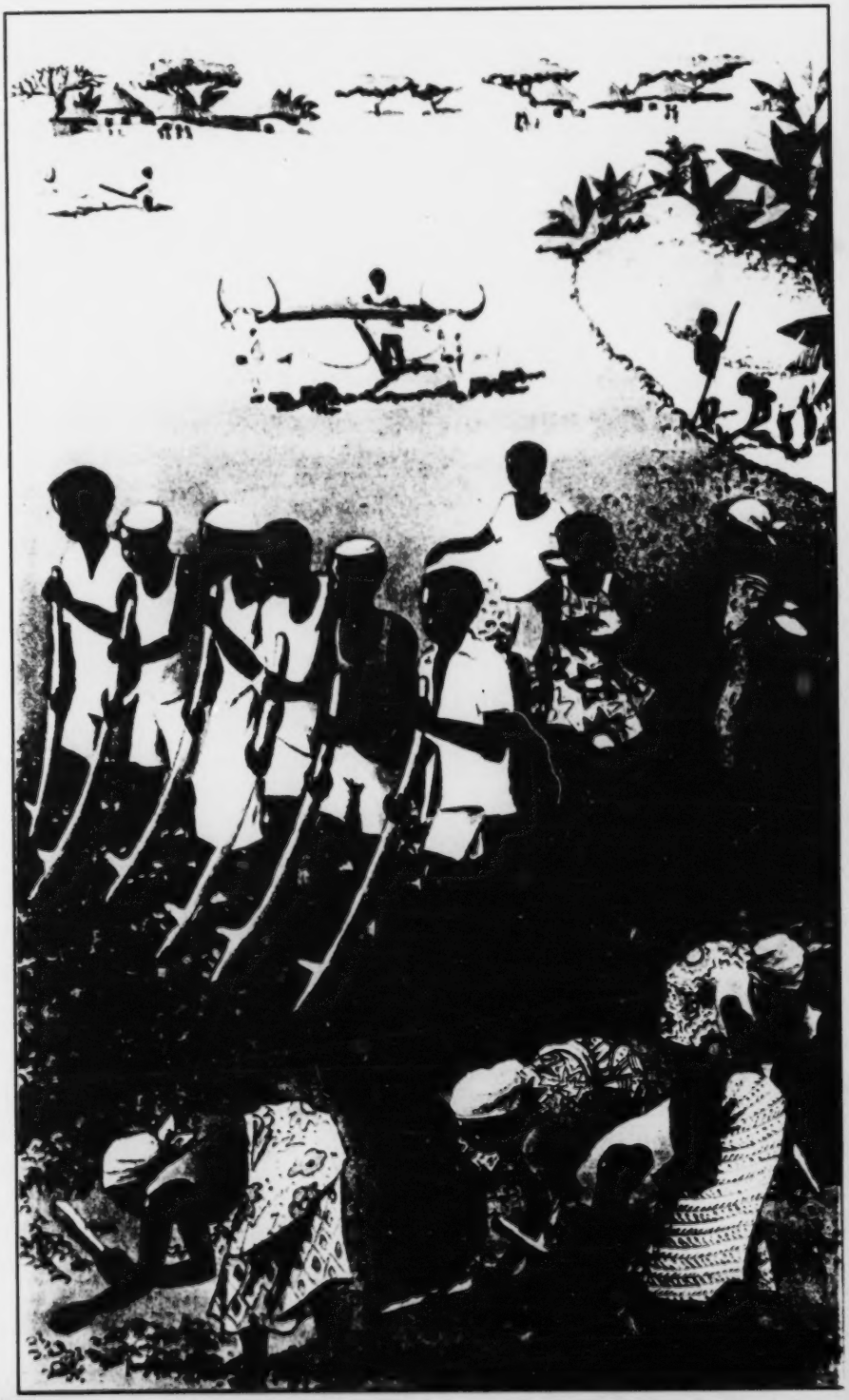
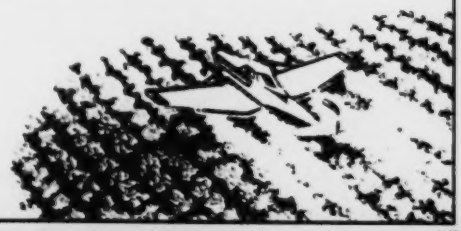


How does cotton grow?
Farmers plant cotton in the spring, when the soil is moist. In about a week, the first leaves appear. The plants need sun and a lot of water.
Many pests like to eat cotton! In America the worst is the **boll weevil.** Safe chemical sprays are used to keep away bugs and weeds.

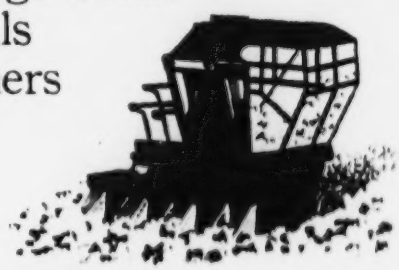
Flies, spiders and caterpillars attack the seed-pods and leaves.

On big farms in the United States, the work is done using big machines. In Africa, cotton is often still planted by hand.

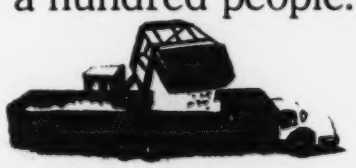


Flying very low, this cropduster sprays the plants with insecticide.

In the fields, the bolls burst open one by one! They are ready for picking and the whole village works together. Open bolls are picked, the others are left to ripen in the sun.



Different kinds of machines are used to pick cotton. Some of them grab leaves and twigs with the bolls. Then the cotton has to be sorted out from all the trash. One machine can do the work of a hundred people. The cotton then goes to a gin, where the fiber is separated from the seed.

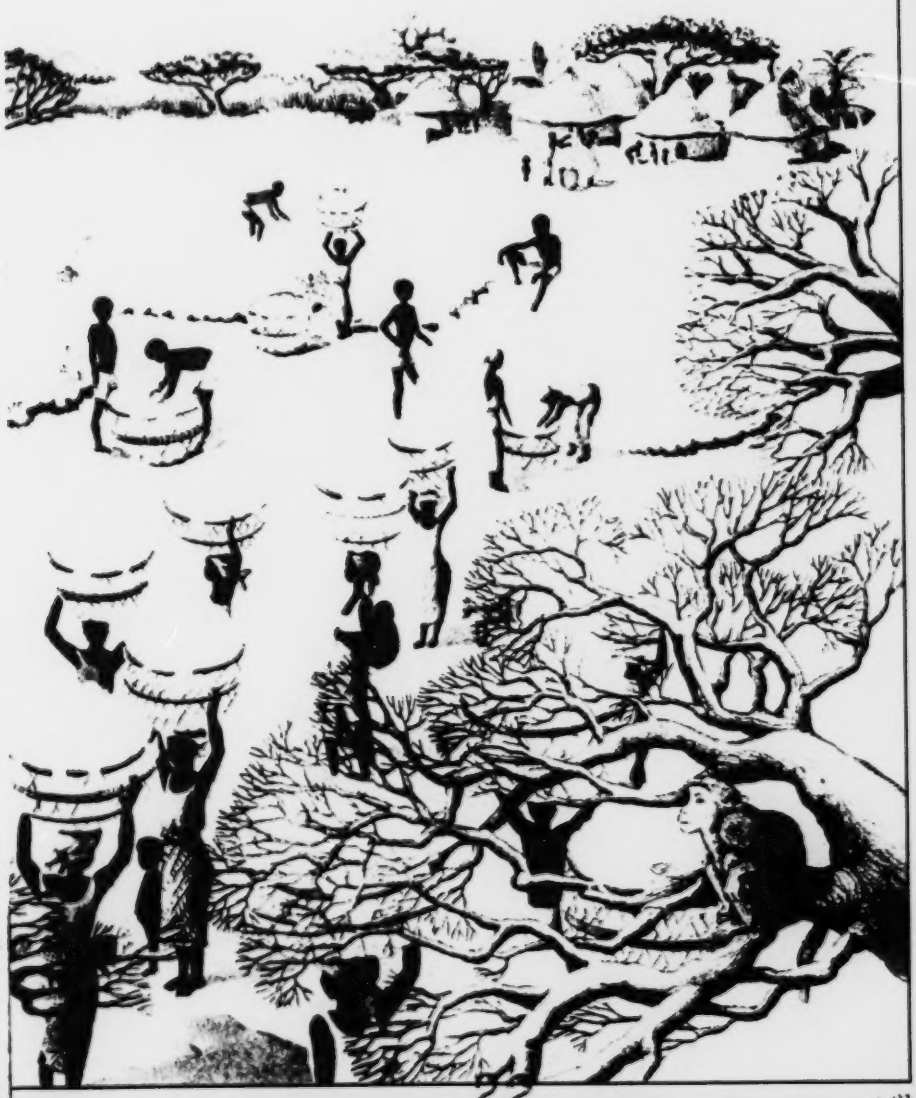


The picking machines empty the cotton into big trucks.

In the United States the cotton is covered with canvas and stored in the fields.

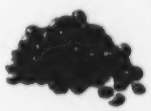
Night falls over the plain.
Everyone returns to the mud-
walled huts of the village.
The adults carry the baskets,
filled with precious cotton.

The cotton is piled up in the marketplace, looking like snow hills. While monkeys and birds watch from the trees, the cotton is weighed and sold to buyers.



a boll

a seed with fibers



the fibers are separated from the seeds

There are at least thirty seeds in each boll. The seeds are surrounded by cotton fibers about an inch long. The longer and silkier the fibers, the more beautiful the cloth will be. Some of the best is grown in Egypt and in Arizona.

Raw cotton is very bulky! It is pressed into bales and bound with steel straps.

What happens to the seeds? Some are saved for next year's plantings. Most are crushed to make oil, or feed for livestock. Even seed fuzz is used—to make cellulose plastic!

These bales of cotton are going to the mill by ship.

From fibers to yarn

To make yarn, or thread, the fibers are pulled and twisted together. The yarn wraps around a small stick, the spindle.

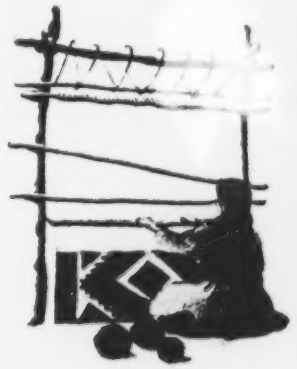
A spinning wheel and spindle.

From yarn to cloth

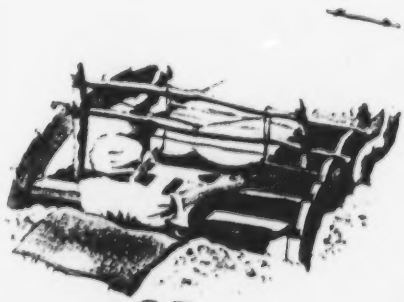
For centuries, yarn has been woven into cotton cloth.

A loom can be just a few sticks of wood.

A **weaver** stretches yarn up and down on a loom...then more is threaded across. Peruvian women in the Andes mountains still spin and weave cotton into ponchos and blankets of many bright colors.



Navajos are famous for their fine weaving.



A loom of the Persian Gulf.

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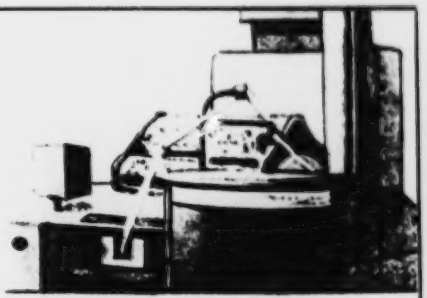
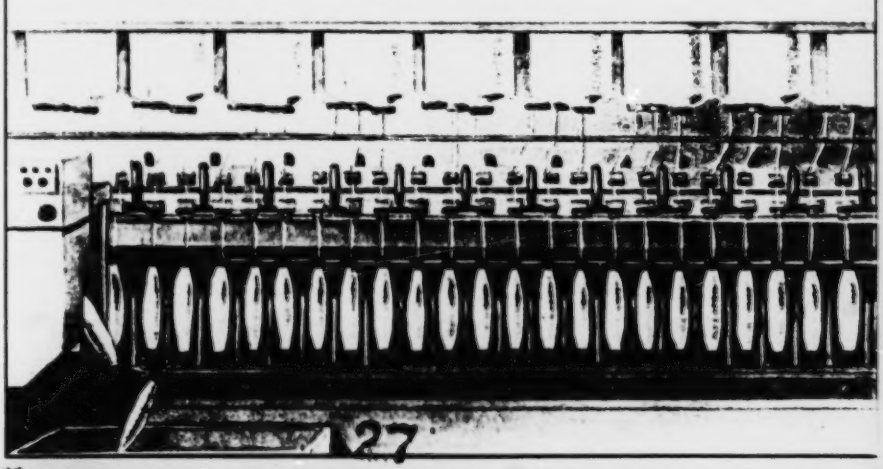
1. The bales are broken up and cleaned.

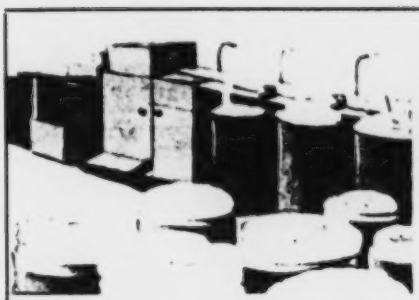


2. The cotton comes out in a soft rope.

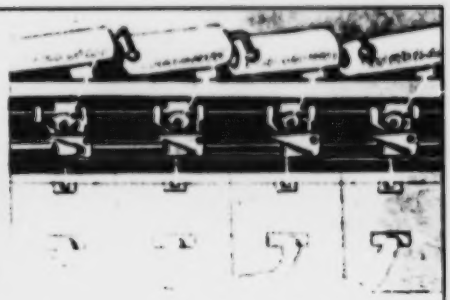
In modern mills big machines do all the work! They open the bales, making them into one big piece. They clean and **card** the cotton, to make the fibers line up straight. They twist the cotton tightly to make yarn. Since new cotton is not very white, it is then cleaned again and bleached.

5. The finished yarn is wound on bobbins.





3. The ropes are stretched, or drawn, on rollers.



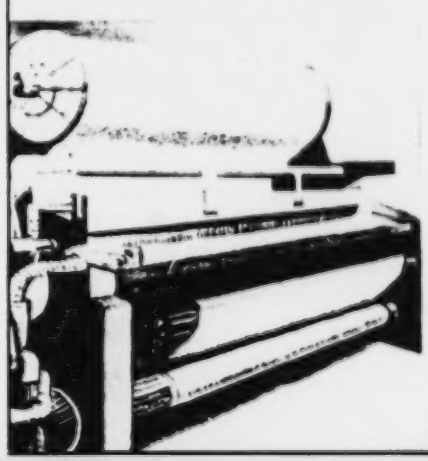
4. They are pulled and twisted tightly to make yarn.

Cotton can be permanent-press (no ironing), preshrunk (no shrinking) or waterproof!

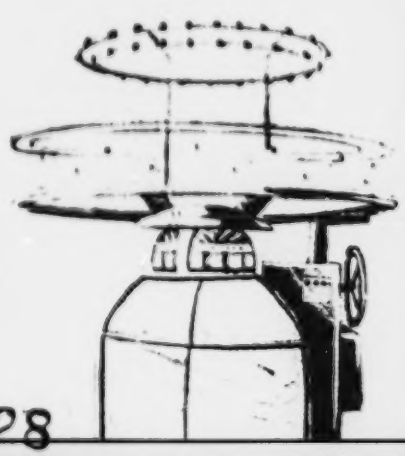
Cotton blends

In the 20th century, cotton fiber has been combined with **synthetic** (man-made) fiber. These modern fibers are made from wood, or coal, or oil...

6. On this loom, the threads are weaved by a jet of air.



7. This machine knits loops of yarn into fabric.



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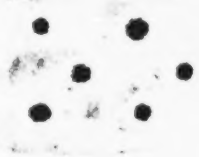
A rainbow of colors! Since ancient times cloth has been **dyed**. People boiled roots and flowers to get blue, red and yellow stains. Today we use chemical dyes. And, newest of all, is naturally grown, colored cotton!...

Cloth being dipped in hot dye.

Knotting cloth before dipping is called tie-dying.

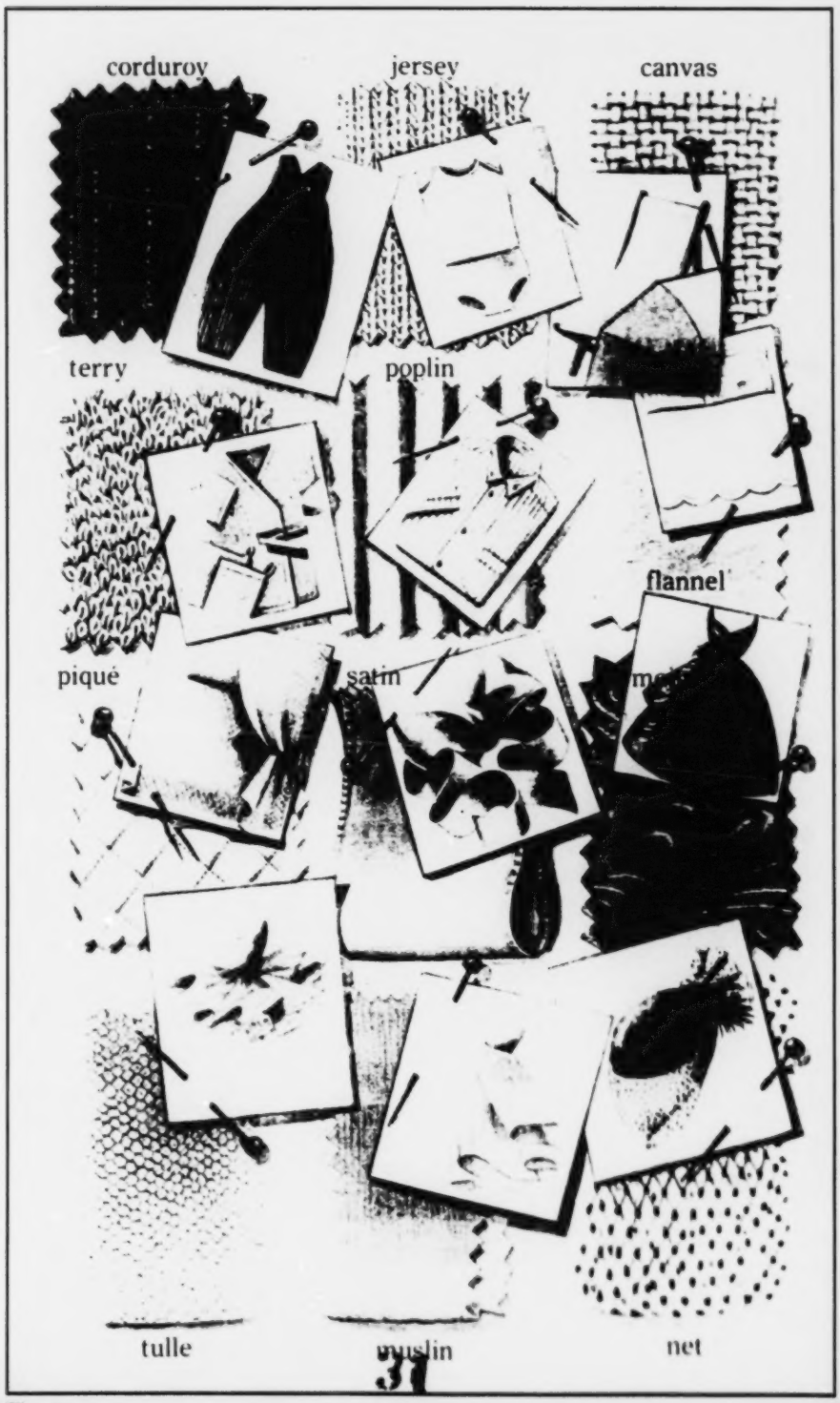


A brush and carved stamp.

The new cotton needs no dye—it grows in brown, blue or red hues.

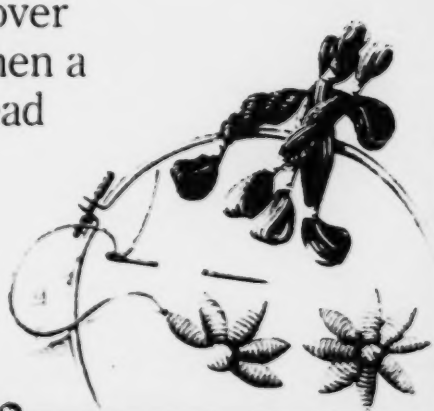
Can you print designs on fabric? Yes, by using brushes, stamps or rollers. If you coat parts of the fabric with wax, before dying, those parts remain white. That's **batik**. Another method, shown here, is silk screen. Machines with printing rollers can do as many as 20 colors.

A printing roller.


corduroy
jersey
canvas
terry
poplin
flannel
piqué
satin
tulle
muslin
net

Not all cotton fabrics look or feel alike! Some are smooth like poplin. Muslin is light and airy. Terry cloth towels are fluffy but the canvas in your sneakers is strong and stiff. Cotton can be crocheted or knitted. It can be knotted into macrame or worked into fine lace.

Do you know how embroidery is done? First, a piece of cloth is stretched over a wooden hoop. Then a smooth, shiny thread is stitched into the cloth. Almost any design can be sewn.

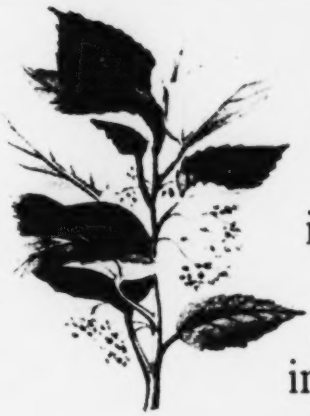


Cloth is also made from many other plants.

Linen, from **flax**, is worn in many lands. Ancient Egyptians wore this light, white fabric. You may have a linen tablecloth and napkins at home.

Hemp produces a very strong, thick fiber. It is spun into ropes and also used for burlap bags. The hemp plant grows mainly in warm lands, such as India.

Jute first came from India, too. It is now grown in many countries. Jute is used in door mats and string bags.



Ramie is a plant grown mainly in Asia. Some growing is done in the southern states of America. Its fine, silky fibers are woven into tablecloths, summer clothes and sheets.

Sisal is similar to hemp and is mainly grown in Mexico. The leaves have coarse, strong fibers. Sisal is used for ropes, hammocks and rough floor mats.

A little animal, the silkworm, produces a valuable fiber. This "worm" is the larva or baby of a Chinese moth. The silkworm feeds on mulberry leaves, then it spins a cocoon. The threads of the cocoon are carefully unwound to get silk thread. The thread can then be made into soft, beautiful silk.

ABCDE
With a needle,
colored thread
and canvas, you
can make a sampler
like this.
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GHUL
RSTU

Dixie

by Daniel D. Emmett

I wish I were in the land of cotton,
Old times there are not forgotten,
Look away, look away, look away,
Dixie Land!

In Dixie Land where I was born in
Early on one frosty mornin',
Look away, look away, look away,
Dixie Land!

Then I wish I was in Dixie,
hoooray! hooray!
In Dixie Land I'll take my stand
To live and die in Dixie, away,
Away, away down south in Dixie.

***Dixie** was written in 1859 and quickly became a national hit. No one knows for sure what "Dixie Land" means. But the song is always identified with the southern states which, today, are still "the land of cotton."*

Cotton Growing Regions of the United States

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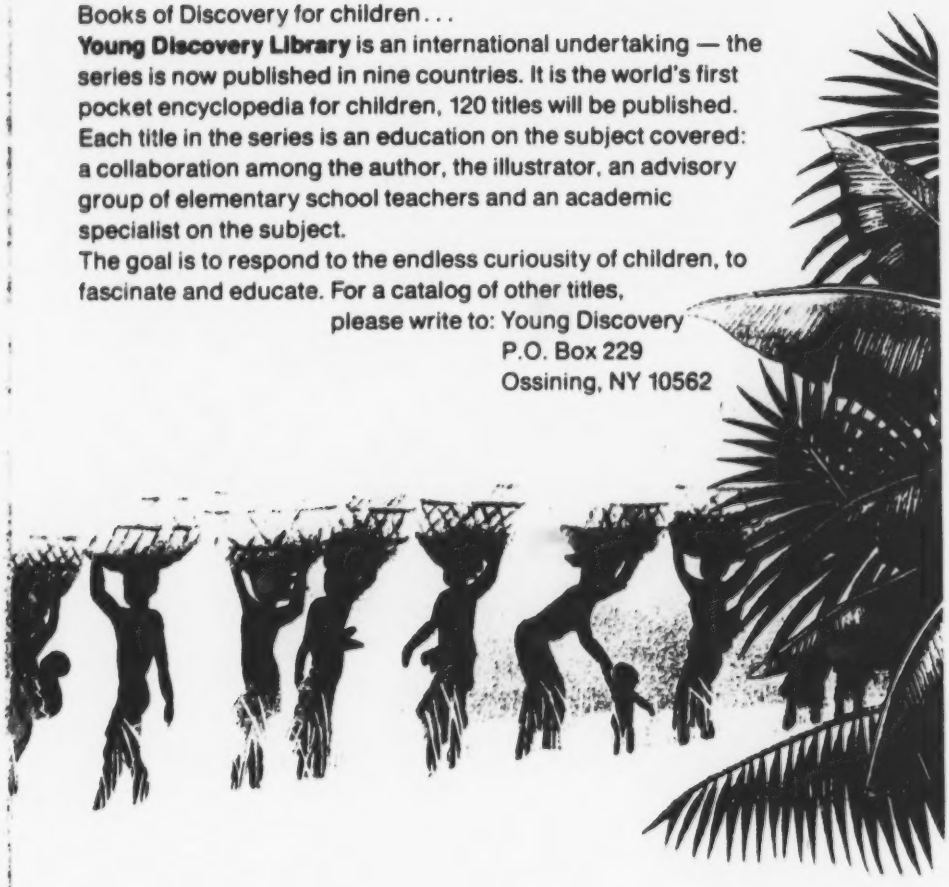

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